

3 a memory;
4 a processor coupled to the screen display and the memory;
5 a plurality of user interface pages stored in the memory and encoded in a markup
6 language, selected ones of the user interface pages providing access to
7 telecommunication functions of the wireless communication device; and
8 a markup language browser, executed by the processor, and communicatively coupled to
9 the memory and the screen display, that:
10 accesses either the stored user interface pages from the memory or remotely
11 stored pages encoded in the markup language via a telecommunications
12 network;
13 decodes accessed pages to display user interface elements on the screen
14 display; and
15 effects a telecommunication function in response to a user input to a
16 displayed user interface element.

1 *But* 2. (Amended) [An apparatus,] A computer program product for use on a wireless
2 communication device, the wireless communication device including a memory, a screen
3 display, a processor for executing the computer program product, and controls for operating the
4 wireless communication device, the computer program product comprising:

5 a shell for receiving a URL having a protocol component and a data component, the data
6 specifying a command to be executed or content to be fetched, the shell providing
7 the data component to a protocol handler according to the protocol component, and
8 the fetched content to a content handler for processing;
9 a plurality of protocol handlers, each protocol handler coupled to the shell to receive a
10 URL and either fetch content specified by the data component and provide the
11 fetched content to the shell, or execute the command specified by the data
12 component; and

13 a plurality of content handlers, each content handler coupled to the shell to receive
14 fetched content and process the fetched content to output the content to [a] the screen
15 display of the wireless communication device.

1 2. (Amended) The [apparatus] computer program product of claim 1, wherein:
2 the plurality of protocol handlers include:

3 a telephone protocol handler that receives a URL from the shell and decodes
4 the URL to activate a telephony function of the wireless
5 communications device;

6 a file protocol handler that receives a URL from the shell and decodes the
7 URL to access data stored in a memory of the wireless communications
8 device;

9 a remote file protocol handler that receives a URL from the shell and fetches
10 content addressed by the data component of the URL that is stored
11 remotely from the wireless communication device; and

12 the plurality of content handlers include:

13 a markup language content handler that receives markup language content
14 corresponding to a URL and displays the content on the screen display
15 of the wireless communication device.

1 3. (Amended) The [apparatus] computer program product of claim 2, wherein the
2 plurality of protocol handlers include:

3 a message protocol handler that receives a URL from the shell and executes a command
4 specified by the data to activate an alphanumeric message display or transmission
5 function of the wireless communication device; and

6 a configuration protocol handler that receives a URL from the shell and establishes a
7 configuration setting of the wireless communications device according to the data
8 component of the URL.

1 ~~N~~ 5. (Amended) The [apparatus] computer program product of claim ~~7~~ ¹, [further
2 comprising] in combination with:

3 [a] the wireless communication device [including] wherein:
4 the screen display displays fetched content;

5 [a] the memory coupled to the screen display, [and] for storing the shell, the
6 protocol handlers, and the content handlers; and

7 [a] the processor coupled to the memory to execute the shell, the protocol handlers
8 and content handlers.

1 6. A computer-implemented method of operating a wireless communications device
2 having a plurality of keys, comprising:
3 receiving a first markup language page containing a tag defining an association between
4 one of the keys and an action;
5 receiving a user selection of the key; and
6 effecting the action associated with the user selected key.

1 7. The method of claim 6, wherein the action is a URL having a data component, further
2 comprising:
3 responsive to the data component of the URL ^B specifying a second page to be fetched,
4 fetching the second page, and displaying the second page; and
5 responsive to the data component of the URL specifying a telephony command of the
6 wireless communication device, executing the telephony command.

1 8. A browser program product for controlling the operation of a wireless communication
2 device by execution of the browser by a processor of the wireless communication device, the
3 browser executing the operations of:

4 decoding a markup language page including a key tag specifying one of the plurality of
5 keys and an action;

6 storing an association between the specified key and the action; and

7 responsive to receiving a user input of the specified key, effecting the action associated
8 with the specified key.

1 9. The browser of claim 8, wherein the key tag specifies a URL, and responsive to user
2 input of the specified key, the browser fetches content associated with the URL and displays the
3 content.

1 10. The browser of claim 9, wherein the key tag specifies a label associated with the
2 specified key, and the browser responsive to decoding the page, displays the label on a screen
3 display.

1 11. (Amended) A computer implemented method [of data] executed by a wireless
2 communication device for processing a page of data encoded in a markup language, the page
3 including a reference to an embedded object, the method comprising:
4 displaying the page on a screen display of the wireless communication device, the page
5 having one or more user interface elements;
6 receiving a user selection of [a displayed] one of the displayed user interface [element in
7 the page] elements, the element associated with a URL encoded within the page, the
8 URL having a protocol component and a data component;
9 invoking the embedded object, and providing the URL to the embedded object for
10 processing; and

11 responsive to the embedded object not processing the URL, fetching content specified by
12 the data component, or executing a command specified by the data component.

1 12. (Amended) A computer implemented method executed by a wireless
2 communication device for automatically displaying help data to a user, the wireless
3 communication device including a screen display, the method comprising:
4 displaying a window having a title in a title bar area;
5 incrementing a counter of an amount of time elapsed since a last user input to the
6 wireless communication device; and
7 responsive to the counter equaling or exceeding a threshold amount of time, replacing
8 the title by scrolling first help data in the title bar area..

1 13. The method of claim 12, further comprising:
2 responsive to a completion of scrolling the first help data:
3 redisplaying the title in the title bar;
4 resetting the counter;
5 incrementing the counter of an amount of time elapsed since the last user input; and
6 responsive to the counter equaling or exceeding the threshold amount, replacing the title
7 bar by scrolling second help data in the title bar.

1 14. The method of claim 12, further comprising the initial steps of:
2 receiving markup language page including a title tag defining the title and a help tag
3 defining the first help data;
4 storing the first help data; and
5 displaying the markup language page in the window including displaying the title in the
6 title bar.

1 15. A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device, the browser executing the operations of:
4 decoding a markup language page including title tag defining a title of the page and a
5 help tag specifying help data;
6 storing the help data;
7 displaying the page in a window;
8 displaying the title in a title bar area of the window;
9 responsive to an elapsed amount of time since a last user input exceeding a threshold,
10 replacing the title in the title bar area by scrolling the stored help data in the title bar;
11 and
12 responsive to completion of the scrolling of the stored help data, redisplaying the title in
13 the title bar area.

1 16. A computer-implemented method of operating a wireless communications device
2 having at least one softkey, comprising:
3 receiving a first user interface definition page defined in a markup language;
4 parsing the first user interface definition page, and storing an association between one of
5 the softkeys and menu of menu items, each menu item associated with either a URL
6 or an action;
7 responsive to receiving a user selection of the softkey, displaying the menu of menu
8 items;
9 responsive to user selection of a displayed menu item associated with an action, effecting
10 the action; and

11 responsive to user selection of a menu item associated with a URL, either fetching data
12 specified by the URL or effecting a communication function of the wireless
13 communication device specified by the URL.

8
1 *Sub* 17. A browser program product for controlling the operation of a wireless
2 *Cl* communication device by execution of the browser by a processor of the wireless
3 communication device, the browser executing the operations of:
4 retrieving a first user interface definition page defined in a markup language;
5 parsing the first user interface definition page, and storing an association between one of
6 the softkeys and menu of menu items, each menu item associated with either a URL
7 or an action;
8 responsive to receiving a user selection of the softkey, displaying the menu of menu
9 items;
10 responsive to user selection of a displayed menu item associated with an action, effecting
11 the action; and
12 responsive to user selection of a menu item associated with a URL, either fetching data
13 specified by the URL or effecting a communication function of the wireless
14 communication device specified by the URL.

9
1 18. (Amended) A computer implemented method executed by a wireless
2 communication device for displaying a page of data on a screen display of the wireless
3 communication device, the method comprising:
4 receiving a first markup language page containing a tag specifying a URL referencing a
5 second markup language page;
6 fetching the second markup language page according to the URL;
7 replacing the tag with the second markup language page to form a combined markup
8 language page; and

9 displaying the combined markup language page on the screen display of the wireless
10 communication device.

10

1 ~~19.~~ A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device, the browser executing the operations of:
4 receiving a first markup language page containing a template tag, the template tag
5 specifying a URL referencing a second markup language page;
6 fetching the second markup language page according to the URL;
7 replacing the template tag with the second markup language page to form a combined
8 markup language page; and
9 displaying the combined markup language page.

11

1 ~~20.~~ A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device, the browser executing the operations of:
4 receiving a first markup language page containing an escape sequence specifying a URL
5 referencing a second markup language page;
6 fetching the second markup language page according to the URL;
7 replacing the escape sequence with the second markup language page to form a
8 combined markup language page; and
9 displaying the combined markup language page.

12
21. A computer implemented method of displaying a page of configuration settings for a
1 wireless communication device having a plurality of configurable features, the method
2 comprising:
3
4 receiving a markup language page including an input type tag defining an input field for
5 receiving a user input of a configuration setting, and a selection attribute equal to the
6 value of an expression including a URL for a configurable feature, the selection
7 attribute indicating whether the input field is preselected;
8 fetching data associated with the URL;
9 evaluating the expression using the fetched data to determine a value of the expression;
10 and
11 displaying the page including the input field of the configuration setting according to the
12 selection attribute as pre-selected or unselected according to the value of the
13 expression.

13
12
22. The method of claim 21, wherein:
1 the expression has the form (selection attribute=[!]URL); and
2 evaluating the expression using the fetched data to determine a value of the expression
3 comprises:
4
5 converting the data associated with the URL to an integer value; and
6 evaluating the expression to obtain either a zero or non-zero value.

14
12
23. The method of claim 21, wherein:
1 the expression has the form (selection attribute = (URL[!]=string)), where *string* is an
2 arbitrary alphanumeric string; and
3
4 evaluating the expression using the fetched data to determine a value of the expression
5 comprises:

6 evaluating the expression by determining if the data associated with the URL
7 is the same as the string to obtain either a zero or non-zero value.

15
24. A browser program product for displaying a page of configuration settings for a
2 wireless communication device having a plurality of configurable features, the browser
3 controlling the operation of a wireless communication device by execution of the browser by a
4 processor of the wireless communication device, the browser executing the operations of:
5 receiving a markup language page including an input type tag defining an input field for
6 receiving a user input of a configuration setting, and a selection attribute equal to the
7 value of an expression including a URL for a configurable feature, the selection
8 attribute indicating whether the input field is preselected;
9 fetching data associated with the URL;
10 evaluating the expression using the fetched data to determine a value of the expression;
11 and
12 displaying the page including the input field of the configuration setting according to the
13 selection attribute as pre-selected or unselected according to the value of the
14 expression.

16
25. (Amended) A computer implemented method executed by a wireless
2 communication device for displaying a page of data on a screen display of the wireless
3 communication device, the method comprising:
4 receiving a markup language page including a conditional tag having an expression
5 including a URL and first markup language data to be conditionally displayed
6 according to the value of the expression;
7 fetching data associated with the URL;
8 evaluating the expression using the fetched data to determine a value of the expression;

9 responsive to the value of the expression being true, displaying on the screen display the
10 markup language page with the first markup language data; and
11 responsive to the value of the expression being false, displaying on the screen display the
12 markup language page without the first markup language data.

17 16
1 ~~26~~. (Amended) The method of claim ~~26~~, wherein:
2 the conditional tag includes second markup language data; and
3 responsive to the value of the expression being false, displaying on the screen display the
4 markup language page without the first markup language comprises displaying the
5 markup language page with the second markup language data.

18
1 ~~27~~. A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device and displaying a page of markup language data, the browser executing the
4 operations of:

5 receiving a markup language page including a conditional tag having an expression
6 including a URL and first markup language data to be displayed according to the
7 value of the expression;
8 fetching data associated with the URL;
9 evaluating the expression using the fetched data to determine a value of the expression;
10 responsive to the value of the expression being true, displaying the markup language
11 page with the first markup language data; and
12 responsive to the value of the expression being false, displaying the markup language
13 page without the first markup language data.

19
1 ~~28~~. (Amended) A computer implemented method executed by a wireless
2 communication device for navigating a markup language page displayed on a screen display of

3 the wireless communication device, the markup language page containing a plurality of
4 hyperlinks, the method comprising:
5 receiving a markup language page including a plurality of hyperlinks;
6 selecting a hyperlink of the markup language page as a current hyperlink;
7 scrolling the markup language file in a direction on the screen display in response to a
8 user input to display only a portion of the markup language file;
9 determining whether a next hyperlink in the direction of scrolling is visible;
10 responsive to the next hyperlink in the direction of scrolling being visible, making next
11 hyperlink the current hyperlink; and
12 responsive to the next hyperlink in the direction of scrolling not being visible, scrolling a
13 portion of the markup language file.

1 ²⁰~~20~~. The method of claim ¹⁹~~28~~, wherein:
2 the markup language page has an attribute specifying a target name of a hyperlink
3 included in the page; and
4 selecting a hyperlink of the markup language page as a current hyperlink further
5 comprises:
6 comparing the target name specified in the attribute with names specified in
7 each of the hyperlinks; and
8 selecting as the current hyperlink the hyperlink having a name matching the
9 target name.

1 ²¹~~30~~. A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device and displaying a page of markup language data, the browser executing the
4 operations of:
5 receiving a markup language page including a plurality of hyperlinks;

6 selecting a hyperlink of the markup language page as a current hyperlink;
7 scrolling the markup language page in a direction on the screen display in response to a
8 user input to display only a portion of the markup language page;
9 determining whether a next hyperlink in the direction of scrolling is visible;
10 responsive to the next hyperlink in the direction of scrolling being visible, making next
11 hyperlink the current hyperlink; and
12 responsive to the next hyperlink in the direction of scrolling not being visible, scrolling a
13 portion of the markup language page.

1 31. (Amended) A computer implemented method executed by a wireless
2 communication device for automatically displaying advertising data to a user[,]
3 on a screen display of the wireless communication device, the method comprising:
4 receiving a markup language page containing a <MARQUEE> tag including displayable
5 text in a header portion of the page, and a title;
6 displaying on the screen display the markup language page in a window having the title
7 in a title bar area;
8 incrementing a counter of an elapsed amount of time; and
9 responsive to the counter equaling or exceeding a threshold amount of time, replacing
10 the title by scrolling the displayable text included in the <MARQUEE> tag in the
11 title bar area.

1 32. A browser program product for controlling the operation of a wireless
2 communication device by execution of the browser by a processor of the wireless
3 communication device and displaying a page of markup language data, the browser executing the
4 operations of:
5 receiving a markup language page containing a <MARQUEE> tag including displayable
6 text in a header portion of the page, and a title;

7 displaying the markup language page in a window having the title in a title bar area;
8 incrementing a counter of an elapsed amount of time; and
9 responsive to the counter equaling or exceeding a threshold amount of time, replacing
10 the title by scrolling the displayable text included in the <MARQUEE> tag in the
11 title bar area.

23

37. A computer-implemented method of operating a wireless communications device
2 having a screen display, a plurality of keys, including at least one softkey, and a plurality of
3 configurable features that can be established by configuration settings, the method comprising:
4 a) receiving a first markup language page including at least one tag selected from a
5 group of tags consisting of:
6 a first tag defining an association between a key and an action;
7 a second tag defining help data;
8 a third tag defining an association between a softkey and a menu of menu
9 items, each menu item associated with either a URL or an action;
10 a fourth tag specifying a URL referencing a second markup language page;
11 a fifth tag accompany an escape sequence specifying a URL referencing a
12 third markup language page;
13 a sixth tag defining an input field for receiving a user input of a
14 configuration setting, and a selection attribute equal to the value of an
15 expression including a URL for a configurable feature, the selection
16 attribute indicating whether the input field is preselected;
17 a seventh tag having an expression including a URL and first markup
18 language data to be conditionally displayed according to the value of the
19 expression;
20 an eighth tag having attribute specifying a target name of at least one
21 hyperlink included in the first markup language page; and

22 a ninth, <MARQUEE> tag including displayable text in a header portion of
23 the first markup language page;
24 b) responsive to a tag in the first markup language being the first tag:
25 receiving a user selection of the key; and
26 effecting the action associated with the user selected key;
27 c) responsive to a tag in the first markup language page being the second tag:
28 storing the help data;
29 displaying the first markup language page in a window;
30 displaying a title of the first markup language page in a title bar area of the
31 window;
32 responsive to an elapsed amount of time since a last user input exceeding a
33 threshold, replacing the title in the title bar area by scrolling the stored
34 help data in the title bar; and
35 responsive to completion of the scrolling of the stored help data,
36 redisplaying the title in the title bar area;
37 d) responsive to a tag in the first markup language page being the third tag:
38 storing the association between the softkey and the menu of menu items;
39 responsive to receiving a user selection of the softkey, displaying the menu
40 of menu items;
41 responsive to user selection of a displayed menu item associated with an
42 action, effecting the action; and
43 responsive to user selection of a menu item associated with a URL, either
44 fetching data specified by the URL or effecting a communication
45 function of the wireless communication device specified by the URL;
46 e) responsive to a tag in the first markup language page being the fourth tag:
47 fetching the second markup language page according to the URL;

48 replacing the fourth tag with the second markup language page to form a
49 combined markup language page; and
50 displaying the combined markup language page;
51 f) responsive to a tag in the first markup language page being the fifth tag:
52 fetching the third markup language page according to the URL;
53 replacing the escape sequence with the third markup language page to form
54 a combined markup language page; and
55 displaying the combined markup language page;
56 g) responsive to a tag in the first markup language page being the sixth tag:
57 fetching data associated with the URL;
58 evaluating the expression using the fetched data to determine a value of the
59 expression; and
60 displaying the first markup language page including the input field of the
61 configuration setting according to the selection attribute as pre-selected
62 or unselected according to the value of the expression;
63 h) responsive to a tag in the first markup language page being the seventh tag:
64 fetching data associated with the URL;
65 evaluating the expression using the fetched data to determine a value of the
66 expression;
67 responsive to the value of the expression being true, displaying the first
68 markup language page with the first markup language data; and
69 responsive to the value of the expression being false, displaying the first
70 markup language page without the first markup language data;
71 i) responsive to a tag in the first markup language page being the eighth tag:
72 selecting one of the hyperlinks of the first markup language page as a current
73 hyperlink;

74 scrolling the first markup language page in a direction on the screen display
75 in response to a user input to display only a portion of the first markup
76 language page;
77 determining whether a next hyperlink in the direction of scrolling is visible;
78 responsive to the next hyperlink in the direction of scrolling being visible,
79 making next hyperlink the current hyperlink; and
80 responsive to the next hyperlink in the direction of scrolling not being
81 visible, scrolling a portion of the first markup language page; and
82 j) responsive to a tag in the first markup language page being the ninth tag:
83 displaying the first markup language page in a window having a title of the
84 first markup language page in a title bar area;
85 incrementing a counter of an elapsed amount of time; and
86 responsive to the counter equaling or exceeding a threshold amount of time,
87 replacing the title by scrolling the displayable text included in the
88 <MARQUEE> tag in the title bar area.

24
34. (Amended) [A] In a wireless communication device having a processor, a screen
2 display, a plurality of keys, including at least one softkey, and a plurality of configurable features
3 that can be established by configuration settings, a browser program product for controlling the
4 operation of [a] the wireless communication device by execution of the browser by [a] the
5 processor [of the wireless communication device having a screen display, a plurality of keys,
6 including at least one softkey, and a plurality of configurable features that can be established by
7 configuration settings], the browser executing the operations of:

8 a) receiving a first markup language page including at least one tag selected from a
9 group of tags consisting of:
10 a first tag defining an association between a key and an action;
11 a second tag defining help data;

12 a third tag defining an association between a softkey and a menu of menu
13 items, each menu item associated with either a URL or an action;
14 a fourth tag specifying a URL referencing a second markup language page;
15 a fifth tag accompany an escape sequence specifying a URL referencing a
16 third markup language page;
17 a sixth tag defining an input field for receiving a user input of a
18 configuration setting, and a selection attribute equal to the value of an
19 expression including a URL for a configurable feature, the selection
20 attribute indicating whether the input field is preselected;
21 a seventh tag having an expression including a URL and first markup
22 language data to be conditionally displayed according to the value of the
23 expression;
24 an eighth tag having attribute specifying a target name of at least one
25 hyperlink included in the first markup language page; and
26 a ninth, <MARQUEE> tag including displayable text in a header portion of
27 the first markup language page;
28 b) responsive to a tag in the first markup language page being the first tag:
29 receiving a user selection of the key; and
30 effecting the action associated with the user selected key;
31 c) responsive to a tag in the first markup language page being the second tag:
32 storing the help data;
33 displaying the first markup language page in a window;
34 displaying a title of the first markup language page in a title bar area of the
35 window;
36 responsive to an elapsed amount of time since a last user input exceeding a
37 threshold, replacing the title in the title bar area by scrolling the stored
38 help data in the title bar; and

39 responsive to completion of the scrolling of the stored help data,
40 redisplaying the title in the title bar area;
41 d) responsive to a tag in the first markup language page being the third tag:
42 storing the association between the softkey and the menu of menu items;
43 responsive to receiving a user selection of the softkey, displaying the menu
44 of menu items;
45 responsive to user selection of a displayed menu item associated with an
46 action, effecting the action; and
47 responsive to user selection of a menu item associated with a URL, either
48 fetching data specified by the URL or effecting a communication
49 function of the wireless communication device specified by the URL;
50 e) responsive to a tag in the first markup language page being the fourth tag:
51 fetching the second markup language page according to the URL;
52 replacing the fourth tag with the second markup language page to form a
53 combined markup language page; and
54 displaying the combined markup language page;
55 f) responsive to a tag in the first markup language page being the fifth tag:
56 fetching the third markup language page according to the URL;
57 replacing the escape sequence with the third markup language page to form
58 a combined markup language page; and
59 displaying the combined markup language page;
60 g) responsive to a tag in the first markup language page being the sixth tag:
61 fetching data associated with the URL;
62 evaluating the expression using the fetched data to determine a value of the
63 expression; and

64 displaying the first markup language page including the input field of the
65 configuration setting according to the selection attribute as pre-selected
66 or unselected according to the value of the expression;
67 h) responsive to a tag in the first markup language page being the seventh tag:
68 fetching data associated with the URL;
69 evaluating the expression using the fetched data to determine a value of the
70 expression;
71 responsive to the value of the expression being true, displaying the first
72 markup language page with the first markup language data; and
73 responsive to the value of the expression being false, displaying the first
74 markup language page without the first markup language data;
75 i) responsive to a tag in the first markup language page being the eighth tag:
76 selecting one of the hyperlinks of the first markup language page as a current
77 hyperlink;
78 scrolling the first markup language page in a direction on the screen display
79 in response to a user input to display only a portion of the first markup
80 language page;
81 determining whether a next hyperlink in the direction of scrolling is visible;
82 responsive to the next hyperlink in the direction of scrolling being visible,
83 making next hyperlink the current hyperlink; and
84 responsive to the next hyperlink in the direction of scrolling not being
85 visible, scrolling a portion of the first markup language page; and
86 j) responsive to a tag in the first markup language page being the ninth tag:
87 displaying the first markup language page in a window having a title of the
88 first markup language page in a title bar area;
89 incrementing a counter of an elapsed amount of time; and

90 responsive to the counter equaling or exceeding a threshold amount of time,
91 replacing the title by scrolling the displayable text included in the
92 <MARQUEE> tag in the title bar area.

21
1 35. (Amended) A computer implemented method of navigating a page of data in a
2 wireless communication device including at least one selectable hyperlink, [in a computer
3 system] the wireless communication device including a screen display but not including an
4 independent cursor controlled by a peripheral pointing device; the method comprising:
5 scrolling the page in a direction on the screen display in response to a user input to
6 display only a portion of the page; and
7 automatically and iteratively assigning a next visible hyperlink in the direction of the
8 scrolling and in the displayed portion of the page to a user selectable key.

1 36. (Amended) A computer implemented method of navigating a page of data in a
2 wireless communication device, the page including a plurality of form fields, each form field
3 having a type, [in a computer system] the wireless communication device including a screen
4 display and a keypad having a plurality of keys, but not including an independent cursor
5 controlled by a peripheral pointing device; the method comprising:
6 scrolling the page in a direction on the screen display in response to a user input to
7 display only a portion of the data file;
8 determining whether a next form field in the direction of scrolling is visible;
9 responsive to the next form field in the direction of scrolling being visible, making next
10 form field a current form field for receiving a user input; and
11 assigning an action for manipulating the current form field to a key of the key pad
12 according to the type of the current form field.

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1 37. A method of configuring a wireless communication device having a display screen
2 and a plurality of user selectable keys, the method comprising:

3 receiving a data file including content and markup language tags defining an
4 arrangement of the content on the display screen, a portion of the content associated
5 with a URL;

6 responsive to the markup language tags displaying the portion of the content associated
7 with the URL on the display screen in a visually distinguished manner;

8 responsive to the markup language tags, assigning the URL associated with the visually
9 distinguished content to one of the user selecteable keys;

10 receiving a user selection of the assigned user selected key; and

11 accessing a data file or function associated with the URL assigned to the user selected
12 key.

22

1 38. (Amended) A computer implemented method of processing data in a form in a
2 stateless system having a server and a wireless communication client device receiving input data,
3 the method comprising:

4 receiving on the wireless communication client device a first markup language page
5 including a first part of a form having at least one input field for receiving user input
6 of data;

7 receiving a first user input of first data into the first part of the form on the wireless
8 communication client device;

9 receiving a second markup language page on the wireless communication client device
10 including a second part of the form while storing locally on the client the received
11 first data;

12 receiving a second user input of second data into the second part of the form on the
13 wireless communication client device;


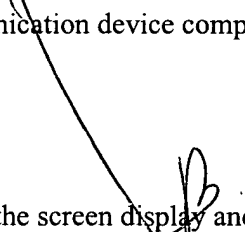
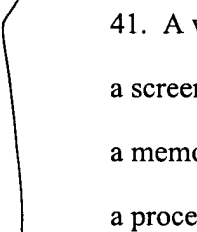
14 combining the stored first data and the second data into a URL; and
15 submitting the URL to the server for processing.

1 39. (Amended) A computer implemented method executed by a wireless
2 communication device [of] for data processing a page of data encoded in a markup language
3 displayed on a screen display of the wireless communication device, the method comprising:
4 displaying the page on the screen display of the wireless communication device, the page
5 having one or more user interface elements;
6 receiving a user selection of [a displayed] one of the displayed user interface [element in
7 the page] elements, the element associated with a command encoded within the
8 page, the command having a protocol component and a data component; and
9 invoking the embedded object, and providing the command to the embedded object for
10 processing, the embedded object processing the command using an internally
11 defined function.

1 ~~40.~~ ⁶ A wireless communication device, comprising:
2 a screen display;
3 a plurality of keys;
4 a plurality of configurable features;
5 a processor coupled to the screen display and the keys;
6 a shell executed by the processor for receiving a URL having a protocol component and
7 a data component, the data specifying a command to be executed or content to be
8 fetched, the shell providing the data component to a protocol handler according to
9 the protocol component, and the fetched content to a content handler for processing;
10 a plurality of protocol handlers, each protocol handler executed by the processor and
11 coupled to receive a URL from the shell and either fetch content specified by the

12 data component and provide the fetched content to the shell, or execute the
13 command specified by the data component; and
14 a markup language content handler executed by the processor and coupled to the shell
15 that receives markup language content corresponding to a URL and displays the
16 content on the screen display, the markup language handler decoding markup
17 language tags from a group comprising:
18 a key tag defining an action for one of the plurality of keys;
19 a help tag defining help text data to be periodically displayed on the screen
20 display;
21 a keymenu tag defining a menu item for a menu associated with a key;
22 a tag specifying a second markup language page different from a first
23 markup language page for including the data of the second markup
24 language page in the first markup language page;
25 an input type tag defining an input field for receiving a user input of a
26 configuration setting, and a selection attribute equal to the value of an
27 expression including a URL for a configurable feature, the selection
28 attribute indicating whether the input field is preselected; and
29 a conditional tag having an expression including a URL and first markup
30 language data to be conditionally displayed according to the value of the
31 expression.

1 41. A wireless communication device comprising:
2 a screen display;
3 a memory;
4 a processor coupled to the screen display and the memory;



5 a plurality of user interface pages stored in the memory and encoded in a markup
6 language, selected ones of the user interface pages providing access to
7 telecommunication functions of the wireless communication device; and
8 browser means executed by the processor, and communicatively coupled to the memory
9 and the screen display, and including:
10 means for accessing either the stored user interface pages from the memory
11 or remotely stored pages encoded in the markup language via a
12 telecommunications network;
13 means for decoding accessed pages to display user interface elements on the
14 screen display; and
15 means for effecting a telecommunication function in response to a user input
16 to a displayed user interface element.

1 *Sub* 42. (Amended) [An apparatus] A browser program product for execution by a wireless
2 communication device, the wireless communication device including a memory, a screen
3 display, and a processor for executing the browser program product, the browser program
4 product comprising:

5 first means for receiving a URL having a protocol component and a data component, the
6 data specifying a command to be executed or content to be fetched, the shell
7 providing the data component to a protocol handler according to the protocol
8 component, and the fetched content to a content handler for processing;
9 a plurality of protocol handler means, each protocol handler means coupled to the first
10 receiving means to receive a URL and either fetch content specified by the data
11 component and provide the fetched content to the shell, or execute the command
12 specified by the data component; and

13 a plurality of content handler means, each content handler means coupled to the first
14 means to receive fetched content and process the fetched content to output the
15 content to [a] the screen display of the wireless communication device.